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ADDITIONAL FUNGI FROM THE GALÁPAGOS AND OTHER PACIFIC COASTAL ISLANDS COLLECTED DURING THE TEMPLETON CROCKER EXPEDITION, 1932

By

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In checking over unidentified specimens in the Mycological Herbarium, University of California, Berkeley, a group of polypores was found among which were several which had not been reported in an earlier report on fungi from the Galápagos (Lee Bonar, 1939. *Proceedings of the California Academy of Sciences,* 4th. Ser., 22:195-206).

These specimens were sent to Cooke for additional study. In addition to confirmation and elaboration of the original notes made when the specimens were first studied, the material has been compared with specimens at the National Fungus Collections in the hope that similar material had been found at other times or places and such material deposited at Beltsville. Specimens examined were those indicated by key characters or descriptions of species in the literature, and by Mr. John A. Stevenson whose extensive knowledge of the fungi of Latin America might have included observation of speci-

mens such as those reported here. A specimen of *Poria (sensu lato)* was sent to J.L. Lowe, New York State University College of Forestry, whose identification is reported below.

Portions of each collection are deposited in the Herbarium of the California Academy of Sciences, the Herbarium of the University of California, Berkeley, and when material was in sufficient supply, in the National Fungus Collections, Beltsville, Maryland and W.B. Cooke's private collections.

Polyporus howellii Cooke and Bonar, new species.

Pileus sessilis, dimidiatus, 3-7 × 2.5-5 × 0.5 cm.; basi brunneus ad marginem versus sensim luteo-brunneo mutandus, concentrice zonatus, superficie brunneus, trichodermatus, velutinus; contextu 1-2 mm., crasso, suberoso, luteo-brunneo; tubulis umbrinis, 1-2 mm., longis; poris angulatis, 5-6 in 1 mm.; basidis 8-9 × 3.5-4 microns, 4-sterigmaticis; sporis brunneis, levibus, ovatis vel subglobosis, apiculatis, 5 × 4 micra.

Fruit bodies sessile, dimidiate, attached by a narrowed base, 3-7 × 2.5-5 × 0.5 cm.; dark brown at the base to yellow brown at the margin, concentrically zonate; surface dark brown, formed of a thin, appressed velvety layer of coarse trichoderm hyphae, 5.5-7 microns in diameter; context corky, yellow brown, 1-2 mm. thick, hyphae 3-5 microns in diameter, turning reddish in KOH; pores angular, somewhat toothed at the margin, deep brown within, 1-2 mm. long, 5-6 per mm.; dissepiments 150 microns across including the hymenium, formed of brown hyphae 2.5-3 microns in diameter; subhymenial hyphae brown, 1.5-2 microns in diameter; hyphal system monomitic, all hyphae simple septate, no clamps seen; no cystidia, setae, or hyphal pegs seen; basidia 8-9 × 3.5-4 microns, 4-sterigmate; spores brown, smooth, broad-ovate to subglobose, apiculate, slightly flattened on one side, 5 × 4 microns.

Type: C.A.S. Herb. No. 420561. On decaying wood, James Island, Galápagos, June 4, 1932, J.T. Howell.

The hyphae are simple septate throughout the fruit body so that the hyphal system of the sporophore is monomitic. Although the spores are brown and no cystidia or setae are present, this species could be assigned to the genus *Inonotus* since it appears to be related to four species placed in this genus by Murrill which are discussed below. The red color in KOH is more typical of *Hapalopilus* than of *Inonotus*, but until the concepts of these genera are more clearly defined this species is included in the catch-all genus of all polyporaceous fungi, *Polyporus*.

Type or authentic specimens of *Inonotus fruticum* (Berkeley & Curtis) Murrill, *I. amplectens* Murrill, *I. corrosus* Murrill, and *I. wilsonii* Murrill, were kindly loaned by C.T. Rogerson, New York Botanical Garden. In all cases the spores varied. Authentic material of *I. fruticum* has brown spores 3-4 microns in diameter, the spores of *I. corrosus* measure 3.5-4 × 2-2.5 microns,

those of *I. wilsonii* measure 3-4×1.5-2 microns, and those of *I. amplectens* 4.5-5.5×1.5-2.5 microns. This group of species includes representatives of two distinct groups of which the latter, including three species, may represent three phases of a single species although a wide series of collections will be necessary to confirm this. All specimens of these species which have been seen have similar contextural features. Next to the hymenophore is a dense layer of tissue, the context, in which the hyphae are not or are only a little larger than those of the dissepiments. In actively growing specimens, upon rapid drying, a consolidation of these hyphae leaves a dark or black line as in *I. wilsonii*. Above this darkened line the context is a little less compact and the hyphae become larger. The cover layer, which may be up to 3 cm. thick in *I. corrosus*, is a spongy tissue which may be considered a trichoderm. The hyphae are dark brown, occasionally septate, sometimes branched but not bovistoid. The basidia in this group are clavate, 8-9×3.5-4 microns, usually 4-sterigmate, and collapse after spore discharge. They are produced from the subhymenial tissue which is light brown in color becoming paler as the terminal two or three cells are reached. This tissue includes hyphae which are simple septate and arise as a series of parallel, somewhat interwoven hyphae in the dissepiments. The subhymenium arises as the direction of growth of the component hyphae changes from perpendicular to horizontal.

Polyporus howellii differs from the four species discussed above by the size and shape of the spores, by the trichoderm, and by the context tissues which do not collapse upon drying to form a darker or black zone separating the hymenophore from the trichoderm.

Coltrichia fonsecoensis Cooke and Bonar, new species.

Pileus mesopodus ad 10 cm., diam., umbrinus, margine luteus, medio infundibuliformi, velutinus, interdum zonatus, superficie trichodermatus; unicus vel plures confluentibus vel multiplicibus; contextu simplice trametoideo, supra molle velutino, infra compacto, brunneo, 2-4 mm., crasso; stipite simplice vel composito, brunneo, trichodermatio, 4-5×0.5-2 cm.; tubuli 0.3-0.5 mm., longi; pori adnati, rotundatis, oribus lutei vel brunnei, 6-10 in 1 mm.; sporis 3-4×2-2.5 *micra, subhyalinis, ovatis, apiculatis, levibus.*

Pileus up to 10 cm. in diameter, deep brown to yellowish in younger portions toward the margin, depressed in center, velvety, simple or confluent or multiplex, sometimes zonate; context simple, appearing duplex because of a deep loose trichoderm, trametoid, soft velvety, of loosely coiled, simple septate, thin-walled, brown hyphae, strongly branched, forming a trichoderm above, becoming deep brown, hard, yellowish brown below, 2-4 mm. thick; stipe simple or compound, united at base, 4-5×0.5-2 cm., often flattened; surface of stipe covered with a trichoderm similar to that of the pileus; pores adnate, mouths yellowish when young, becoming deep brown, circular, very small,

8-10 per mm., 0.3-0.5 mm. long; context hyphae continuous in the dissepiments, compact, 3-4 microns in diameter in the upper part of the context, 4-6 microns in diameter in the lower part, 2.5-3 microns in the dissepiments, irregularly interwoven; hyphal system monomitic, no clamps observed; sections of the pileus and hymenium turn red in KOH; setae absent; spores subhyaline, 3-4×2-2.5 microns; no dark line in subhymenium.

Type: C.A.S. Herb. No. 420562. On ground, Consequina Volcano, Gulf of Fonseco, Nicarauga, July 6, 1932, Mr. Templeton Crocker.

Fruit bodies of this fungus were compared with those of *Polyporus multiformis* Montagne, *P. luteo-nitidus* Berkeley, and *P. spathulatus* (Hooker), Montagne, at the National Fungus Collections because in keying the specimens in the North American Flora these appeared to come close to it. However, there was no resemblance between this and other species. The specimen comes closest in general appearance to *Polyporus tomentosus* Fries, a representative of the genus *Onnia* which has setae. Since this specimen has no setae, it is placed in the genus *Coltricia* of which it is the species with the largest fruit bodies reported to date.

Coriolus insularis Cooke and Bonar, new species.

Pileus sessilis, 3-12×5-9×0.4-0.8 cm., pallide flavus vel pallide avellaneus, firmus, rigidus; superficie multizonata, concentrice sulcata, hyphis agglutinatis; margine acuta, tenuissima; contextu fibrosa, subisabellino, plus minusve 1 mm., crasso; sporis subglobosis, levibus, hyalinis, 3.5-5 micra diam.

Pileus sessile, 3-12×5-9×0.4-0.8 cm., light bay to yellowish flesh color, tough rigid; surface concentric sulcate zonate, covered by agglutinate-appressed, rugose, bristle-like hyphal masses; margin acute, very thin; context fibrous, subisabelline, averaging about 1 mm. thick; tubes up to 5 mm. long, mouths even, alutaceous, 2-3 per mm., conspicuously stuffed in older portions; spores subglobose, smooth hyaline, 3.5-5 microns; very few spores found.

Type: C.A.S. Herb. No. 420563. On decaying wood, Fortuna, Indefatigable Island, Galápagos, May 8, 1932, J.T. Howell.

Other specimens examined: all from the Galápagos Islands; Post Office Bay, Charles Island, collected by J.T. Howell, May 17, 1932; collected by Alban Stewart, Charles Island, No. 2650, Feb. 27, 1906; No. 4191, Feb. 28, 1906; South Albemarle Island, No. 6408, Aug. 23, 1906; Abington Island, No. 8597, Sept. 14, 1906.

Specimens of this species resemble somewhat those of *Coriolus pinsitus* (Fries), Patouilland. However, the smaller spores and the coarse aggregations of trichoderm hyphae make it quite distinct.

Polyporus galapagensis Cooke and Bonar, new species.

Pileus usque ad 2 cm., diam., unico vel confluenti; stipite usque ad 5 mm. longo, spathulato; pileo marginato trichodermato; contextu lento-carnoso, albescente, 1 mm., crasso; tubulis usque and 2 mm., longis, 5-6 in 1 mm.; ore tenui, irregulari; basidiis clavatis, 4-sterigmaticis, 10-12×5-6 micra; sporis subglobosis, hyalinis, levibus, apiculatis, 4-5×3-4 micra.

Pileus up to 2 cm. in diameter, stipe to 5 mm. long, pilei sometimes confluent, margin even, not ciliate; attachment of cap to stipe spathulate; surface of cap appressed radiate, trichoderm weakly developed, formed of few hyphae scattered on surface; context tough-fleshy, flexible, whitish, up to 1 mm., thick; older context hyphae slightly pigmented, continuous; upper context and trichoderm hyphae up to 5.5 microns in diameter, intermingled with younger hyphae up to 3 microns in diameter; context of cap and stipe continuous, of similar hyphae; tubes up to 2 mm., long, 5-6 per mm.; mouths thin, uneven; dissepiments and tramal hyphae 2.5-3.0 microns in diameter; subhymenial hyphae 1.5-2 microns in diameter; hyphae interwoven, clamped, pseudoparenchymatous in trama of cap, stipe and dissepiments; subhymenial and trichoderm hyphae arising in context of cap and dissepiments; hyphal system monomitic; no setae, cystidia, or hyphal pegs observed; basidia clavate, 4-sterigmate, 10-12×5-6 microns; spores subglobose, hyaline, smooth, apiculate, slightly flattened on one side, 4-5×3-4 microns.

TYPE: C.A.S. Herb. No. 420564. On decaying wood, Fortuna, Indefatigable Island, Galápagos, May 11, 1932, J.T. Howell.

There is a superficial resemblance in size and habit to *Porodisculus poculus* (Schweinitz), Murrill, and a closer resemblance to *Polyporus rhipidium* Berkeley, but microscopic characteristics keep these species apart.

Poria umbrinella Bresadola.

Poria umbrinella BRESADOLA, Hedwigia 1896: 282. 1896.
Fuscoporella mexicana MURRILL, N. Am. Fl. 9(1): 7. 1907.
Poria mexicana (Murrill) SACCANDO & TROTTER, Syll. Fung. 21:337. 1912.

A specimen assigned to this species by J.L. Lowe was among the collections made by Alban Stewart. This species, first collected in Brazil, including several collections assigned to other specific categories now considered synonymous, has been reported from angiospermous wood in the southern United States and tropical America. Dr. Lowe reported in correspondence that the collection represents an interesting range extension, and that it approaches that form of the species represented by the mentioned synonym.

On rotting wood, : Cocos Island, Costa Rica, Sept. 7, 1905, Alban Stewart No. 1425.